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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,326	02/07/2006	Shoji Sekino	NEC NE70217	6649

27667 7590 10/01/2009

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EXAMINER	
ENIN-OKUT, EDU E	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
10/01/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/567,326	SEKINO ET AL.	
	Examiner	Art Unit	
	Edu E. Enin-Okut	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *2 and 5* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4 and 6-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

ELECTRODE ACTIVE BLANKS AND METHODS OF MAKING

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 22, 2009 has been entered. Applicant has amended claims 1 and 7; and, cancelled claim 5. Currently, claims 1 and 3, 4, 6-12 are pending.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Drawings

3. The objection to the drawings under 37 CFR 1.83(a) are withdrawn because claim 7 was amended.

Claim Rejections - 35 USC § 112

4. The rejection of claim 7 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is withdrawn because claim 7 was amended.

Claim Rejections - 35 USC § 103

5. The rejections of claims 1, 3, 4, 5, 6, 8 and 9, 10, 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiba et al. (US 4,493,878) in view of Yonetsu et al. (US 7,147,950), Herdeg et al. (US 6,610,433), and Gottesfeld (US 6,309,770) are withdrawn because claim 1 was amended, and claim 5 was cancelled.

6. Claims 1, 3, 4 and 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirsch et al. (US 2004/0209133).

Regarding claims 1, 3, 4, 8, 9 and 11, Hirsch teaches a fuel cell system 100 including a fuel cell 102 that has a membrane electrode assembly (MEA) composed of a proton-conductive electrolyte 103 [solid electrolyte membrane] disposed between a catalyzed anode aspect 104a [fuel electrode] and a catalyzed cathode aspect 104b [oxidant electrode] (para. 47; Fig. 1). Liquid fuel is contained in a fuel tank 110 (para. 48). A fuel delivery regulation assembly 120 is disposed between the fuel tank 110 and a passive mass transport barrier element 112 (i.e., a methanol delivery film, MDF), or between the MDF 212 and a vapor chamber 216 [fuel vessel] holding vaporous fuel fed to the anode (para. 49, 51, 52; Figs. 1, 2). The regulation assembly 120 can be used to limit or control the amount of fuel that travels from the tank 110 to the MDF 112, or the fuel delivery directly to the anode aspect (para. 51, 52).

Hirsch also teaches several fuel delivery regulation assembly embodiments. An embodiment of the assembly includes a slidable shutter assembly 400 [shutter member] with the size of its apertures controlled by the relative placement of first and second components 402a, 402b (para. 53-59; Figs. 3A-4B). The shutter assembly is actuated by a control system 408 which may include mechanical means, such as servos and/or a motor with a gear and lever assembly [rotary unit] (para. 58, 59; Figs. 4A, 4B). Another aspect of the fuel delivery regulation assembly includes a fuel flow control element 1205

[permeation control film] that is an expandable element actuated by a variety of mechanisms (e.g., methanol concentration) in order to regulate the flow of fuel to the MEA (para. 78, 79; Figs. 12A, 12B).

Although Hirsch does not expressly teach that the fuel supplier includes *both* a permeation control film and shutter member (emphasis added), it has been held that "[i]t is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). See MPEP 2144.06 (I).

Regarding claim 6, Hirsch teaches that actuation of the slidable shutter assembly is controlled by a control system, as described above. The reference also teaches that the control system may respond to feedback from the fuel cell system, such as that generated based on the concentration of fuel that is being delivered to the anode aspect of the MEA (para. 66).

Regarding claim 7, Hirsch teaches a fuel flow control assembly may include a series of expandable components 1121a-c, which expand upon actuation (in response to methanol concentration changes, for example), and a series of second components 1215a-d (para. 79; Fig. 12B). When expandable components 1121a-c are not actuated, the second components 1215a-d are fully open and permit the flow of fuel through it (para. 80). When the expandable components are actuated, they expand which causes the second components to deform and thus restrict the fuel flow (para. 79). The entire assembly may be used as the fuel control element 1205 shown in Fig. 12A (para. 79). It would have been obvious to one of ordinary skill in the art at the time of the invention to form the deformable, second components described above as holes, or cut portions, formed in the expandable material of the fuel control element of Hirsch because holes formed in the expandable material would perform in a manner similar to that described.

Regarding claim 10, Hirsch teaches a fuel flow control assembly 1220 may include a housing 1222 with openings (to allow fuel to flow therethrough) and one or more flexible bladders 1224 (para. 80; Fig. 12C). By expanding the bladder via filling it with anodically generated carbon dioxide, the housing expands to control introduction of fuel (from the fuel tank [fuel supply unit]), to the MEA (para. 80).

Although Hirsch does not expressly teach that the fuel supply unit *itself* is configured so as to change its volume depending on its internal pressure (emphasis added), since it has been held that forming in one piece an article which has formerly been formed in several pieces and put together involves only routine skill in the art (e.g., *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)), it would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the fuel supply unit used in the fuel cell system of Hirsch to change its volume in response to its internal pressure because Hirsch teaches that this is another means with which to control fuel flow. See MPEP 2144.04 (V)(B).

Regarding claim 12, Hirsch teaches that the bladder 1224 of a fuel flow control assembly 1220 is filled it with anodically generated carbon dioxide [gas produced at the fuel electrode], as discussed above with respect to claim 10.

Although Hirsch does not expressly teach that a gas duct guides the carbon dioxide discussed above, it would have been obvious to one of ordinary skill in the art at the time of the invention to use piping, such as a gas duct, to move the gas produced at the fuel electrode used in the fuel cell system of Hirsch to its fuel vessel because ducts are well-known in the art as means with which to

Response to Arguments

7. Applicant's arguments with respect to claims 1, 3, 4 and 6-12, filed September 22 2009, have been fully considered but applicant has amended the claims such that new grounds for rejection were necessitated.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Edu E. Enin-Okut** whose telephone number is **571-270-3075**. The examiner can normally be reached on Monday to Thursday, 7 a.m. - 3 p.m. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edu E Enin-Okut/
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795